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PATENT APPLICATION

ATTORNEY DOCKET NO. 10018165 -1

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Kevin John Youngers
Application No.: 09/911954
Filing Date: Jul 24, 2001

Confirmation No.: 5715
Examiner:
Group Art Unit:

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Title: Method And Apparatus For Reducing Inaccuracies When Processing Color Data With A Matrix

Mail Stop Appeal Brief - Patents
Commissioner For Patents
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TRANSMITTAL OF REPLY BRIEFTransmitted herewith is the Reply Brief with respect to the Examiner's Answer mailed on 11/18/2005

This Reply Brief is being filed pursuant to 37 CFR 1.193(b) within two months of the date of the Examiner's Answer.

(Note: Extensions of time are not allowed under 37 CFR 1.136(a))

(Note: Failure to file a Reply Brief will result in dismissal of the Appeal as to the claims made subject to an expressly stated new ground rejection.)

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Respectfully submitted,

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By David W. Boyd

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DEC 12 2005

Inventor(s): Kevin J. Youngers

Serial No.: 09/911,954

Examiner: Colin M. Laroche

Filing Date: 07/24/2001

Group Art Unit: 2627

Title: Method and apparatus for reducing inaccuracies when processing color data with a matrix

THE ASSISTANT COMMISSIONER OF PATENTS
Washington, D.C. 20231

REPLY BRIEF

Pursuant to the provisions of 37 CFR § 41.41, Applicant hereby replies to the Examiner's answer mailed November 18, 2005.

ISSUES

1. Whether claims 1-20, 22-24, and 27 are anticipated under 35 U.S.C. § 102(b) by Sobol (U.S. Pat. No. 5,854,859).
2. Whether claim 21 is obvious under 35 U.S.C. §103(a) over Sobol (U.S. Pat. No. 5,854,859).
3. Whether claims 25 and 26 are obvious under 35 U.S.C. §103(a) over Sobol (U.S. Pat. No. 5,854,859) in view of Denber (U.S. Pat. No. 5,214,470).

ARGUMENT**A. Rejection of claims 1-20, 22-24, and 27 under 35 U.S.C. § 102(b)**

Claims 1-20, 22-24, and 27 have been finally rejected under 35 U.S.C. § 102(b) as being anticipated by Sobol (U.S. Pat. No. 5,854,859). “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. V. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed Cir. 1987). “The identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

i) Claims 1-3

Claim 1 recites in part examining the color components of a pixel and selectively applying a matrix to the color components. It is important to note that claim 1 recites examining color components (plural) of a pixel (singular) and applying a matrix to them. By contrast, Sobol describes applying a Laplacian filter to a set of values made up of a single color component (singular) or lightness value from each of several pixels (plural). (Sobol column 2 lines 43-67).

Figure 1 below illustrates the distinction. Figure 1 shows the structure of an example image having three color planes labeled red, green, and blue. Each pixel comprises three color components, one from each color plane. In computing an example processed color component RP_{4,7}, Sobol combines color component R_{4,7} with adjacent color components in the same color plane. Using Sobol’s example formula (Sobol column 2 lines 66-67) with K=2 gives RP_{4,7} = (6* R_{4,7} - R_{4,6} - R_{4,8} - R_{3,7} - R_{5,7})/2. Note that the formula involves only a single color component value from any one pixel.

A method in accordance with Applicant’s claim 1 for computing an output red color component RP_{1,8} from pixel (1,8) using example coefficients given at page 8 line 12 of the specification gives RP_{1,8} = 0.8*R_{1,8} + 0.1 G_{1,8} + 0.05*B_{1,8}. Note that this formula includes all three color components of pixel (1,8), and no color components of any other pixel.

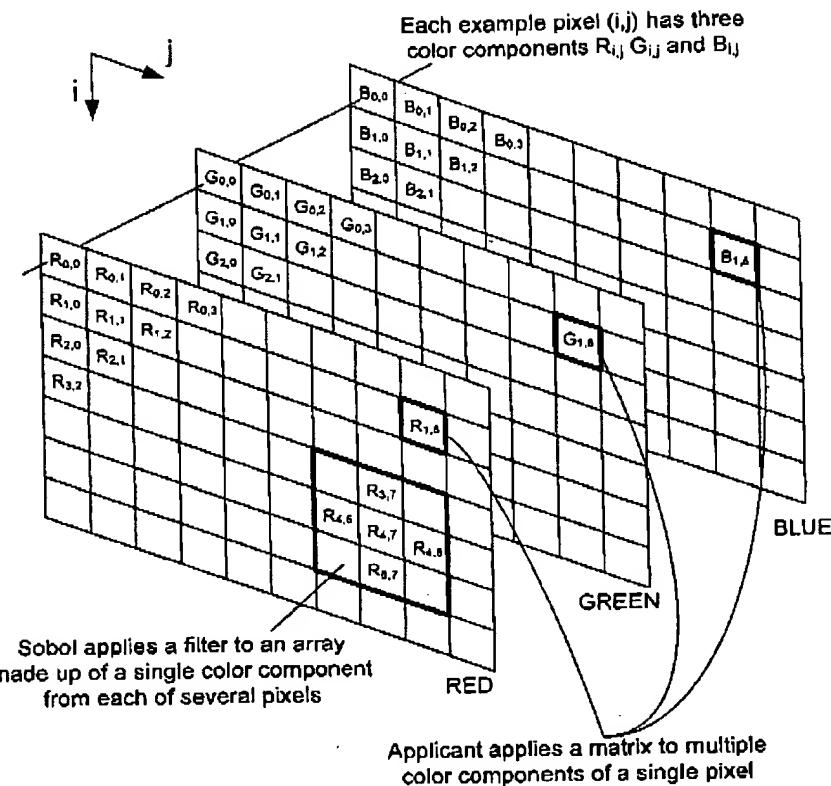


FIG. 1

The examiner insists that Sobol anticipates claim 1 because "Sobel expressly teaches applying the matrix to *each* color component." (Examiner's answer page 13). Applicant has provided a clear definition in the specification of what is meant by applying a matrix.

The matrix operation creates new output color components for each pixel by *mixing* the raw color components from the pixel. For example the output red component is composed from a ratio of the raw red, raw green, and raw blue color components. The output green component is composed from a different ratio of the raw red, raw green, and raw blue color components. And the output blue color component would be composed of a third ratio of the three raw color components. (Specification page 4 line 23 through page 5 line 5, emphasis added).

Nowhere does Sobol describe *mixing* raw color components. Applying Sobol's filter to each of the color planes independently merely produces filtered color components, each unaffected by any color component from any other color plane. Clearly, Sobol does not describe examining the color components of a pixel and selectively applying a matrix to the

color components. Because Sobol does not describe all of the elements of Applicant's claim 1, claim 1 is not anticipated by Sobol.

Claims 2 and 3 depend from claim 1 and add further limitations and are therefore also not anticipated by claim 1.

ii) Claims 4-20, 22-24, and 27

The argument given above with regard to claim 1 applies as well to independent claims 4, 6, 13, 14, 15, 23, 24, and 27. Each of these independent claims recites a method or device in which multiple color components of a pixel are transformed, modified, mapped or otherwise processed using a matrix. Because Sobol does not describe processing multiple color components of a pixel with a matrix as the process is defined in Applicant's specification, these claims are not anticipated by Sobol. Each of claims 5, 7-12, 16-20 and 22 depends from one of claims 4, 6, or 15 and adds additional limitations. These claims are thus also not anticipated by Sobol.

B. Rejection of claim 21 under 35 U.S.C. § 103(a)

Claim 21 has been finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Sobol (U.S. Pat. No. 5,854,859). Applicant respectfully traverses the rejection because the examiner has not made out a *prima facie* case of obviousness with respect to claim 21.

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." (MPEP 2143).

In rejecting claim 21, the examiner relies on Sobol to disclose "substantially the claimed invention as discussed above for claim 15." (Examiner's answer page 11). Applicant has shown above that Sobol does not in fact disclose the invention of Applicant's claim 15, and therefore the prior art reference fails to teach or suggest all of the limitations of claim 21. The examiner's *prima facie* case fails for at least this reason.

C. Rejection of claims 25 and 26 under 35 U.S.C. § 103(a)

Claims 25 and 26 have been finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Sobol (U.S. Pat. No. 5,854,859) in view of Denber (U.S. Pat. No. 5,214,470). Applicant respectfully traverses the rejection because the examiner has not made out a *prima facie* case of obviousness with respect to these claims.

The examiner relies on Sobol to teach or suggest all of the limitations of claims 25 and 26 except a "lens system that forms an image on the photo sensor" (Examiner's answer page 12), and relies on Denber to supply this element. Applicant readily admits that it is well known for a camera to have a lens that forms an image on a photo sensor. However, the examiner's *prima facie* case fails because Sobol does not teach or suggest that for which it is relied upon. Each of claims 25 and 26 recites in part a processor configured to map color components of the image data. As has been previously shown, Sobol does not describe mapping color components (plural) as that process is explained in Applicant's specification. The examiner's *prima facie* case fails for at least this reason.

CONCLUSION

In view of the above, Applicant respectfully requests that all of the examiner's claim rejections be reversed.

Respectfully submitted,

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